

Rohn fails to disclose several limitations of claim 7. Rohn is directed to a ball bearing assembly which comprises two inner bearing sleeves (5) having stepped raceways (9, 10), two outer bearing sleeves (14) having stepped raceways (19, 20) which cooperate with the raceways (9, 10) of the inner bearing sleeves (5), a number of balls (11, 12) positioned in the cooperating raceways, and a casing (21) having threaded receptacles (22, 23) for receiving the outer bearing sleeves (14). Thus, to the extent that each outer bearing sleeve (14) defines applicants' claimed "tubular female member", the outer bearing sleeve (14) does not include "an annular shoulder formed at the inner end of the recess". Moreover, to the extent that the outer bearing sleeve (14) and the casing (21) together are considered to be the "tubular female member", such that the flange (24) defines applicants' claimed "annular shoulder formed at an inner end of the recess" and the adjacent end of the inner bearing sleeve (5) defines the "first end" of the male member, Rohn still fails to disclose a swivel joint wherein "the radius of each race as measured from the central axis is greater than the radius of each adjacent race *closer to the first end* of the male member." Rather, in the ball bearing assembly of Rohn, the radius of each race is *less than* the radius of each adjacent race closer to the "first end" of the inner bearing sleeve (5). Furthermore, Rohn does not disclose that the difference between the radii of the adjacent races is an "amount sufficient to enable each race to accommodate *one more ball* than is disposed in the adjacent race." These significant differences between claim 7 and Rohn preclude a finding that claim 7 is anticipated by Rohn.

German Patent '215 similarly fails to disclose several limitations of claim 7. Figures 10 and 11 of this patent appear to disclose a ball bearing assembly which comprises an inner member (35) having stepped races (39, 40), an outer member (36) having stepped races (37) which cooperate with the races (39, 40) of the inner member (35), and a number of balls (33, 34) positioned in the cooperating races. However, assuming the outer member (36) defines applicants' claimed "tubular female member", the outer member (36) does not include "an annular shoulder formed at the inner end of the recess". Moreover, German Patent '215 does not disclose that the difference between the radii of the adjacent races is an "amount sufficient to enable each race to accommodate *one more ball* than is disposed in the adjacent race." Although as the Examiner asserts each race appears to be capable of accepting *more balls* than the adjacent race, this is not what claim 7 requires. Rather, claim 7 requires that the radii of the races be specifically sized such that each race will accommodate *one more ball* than the adjacent race, and German Patent '215 does not disclose this limitation. These significant differences between claim 7 and German Patent '215 preclude a finding that claim 7 is anticipated by this reference.

Claims 1, 2, 7 and 8 stand rejected under 35 U.S.C. §102(b) as being clearly anticipated by U.S. Patent No. 990,946 to Badger. However, this patent does not disclose the swivel joint recited in independent claims 1 or 7, on which claims 2 and 8 respectively depend. Therefore, claims 1, 2, 7 and 8 are not anticipated by Badger.

Badger discloses a roller bearing assembly for vehicle wheels and machines (page 1, lines 9-14). The bearing includes a "double cone" shaped inner bearing member (5) and an outer bearing member that comprises two sections (6) which each cover one-half of the inner bearing member (5). Between each side of the inner bearing member (5) and the adjacent section of the outer bearing member (6) are provided a number of annular roller raceways (7) which are arranged in stepped relation. Also, an examination of Figure 2 of Badger will reveal that 38 balls are disposed in the inner race, 47 balls are disposed in the middle race and 56 balls are disposed in the outer race.

In addition to the obvious differences between the ball bearing assembly of Badger and the swivel joint recited in claim 1 of the instant application, Badger clearly does not disclose a swivel joint "wherein the number of balls in each race is *one more* than the number of balls in each adjacent race closer to the first end" of the male member. Rather, as can be readily discerned from Figure 2 of Badger, the middle race has 9 more balls than the inner race and the outer race has 9 more balls than the middle race. Therefore, Badger cannot be found to anticipate claim 1.

Similarly, with respect to claim 7 Badger does not disclose a swivel joint wherein the difference between the radii of the adjacent races is an "amount sufficient to enable each race to accommodate *one more ball* than is disposed in the adjacent race." Instead, the adjacent races of Badger's ball bearing assembly are sized so as to accommodate *nine* more balls than is disposed in the adjacent race. Therefore, Badger does not anticipate claim 7.

Claims 2 and 8 depend from claims 1 and 7, respectively, and thus include additional limitations not found in claims 1 and 7. Therefore, for the reasons stated above with respect to claims 1 and 7, claims 2 and 8 are not anticipated by Badger.

Claims 1-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,418,947 to Talafuse in view of U.S. Patent No. 990,946 to Badger. The Examiner states in effect that it would have been obvious to provide more balls and of the same size to the outer bearings of Talafuse as taught by Badger in order to properly fill the race for added support of the coupling. However, the combination of Badger and Talafuse is improper. In addition, assuming the combination of Badger and Talafuse is proper, this combination does not disclose the invention recited in applicants' independent claims 1, 7 and 13. Therefore, claims 1-18 are patentable over Talafuse.

The combination of Badger and Talafuse is improper because these references are directed to unrelated arts. As discussed above, Badger is directed to a ball bearing assembly for wheels and machinery. The ball bearing assembly is used to rotatably connect a wheel or similar component to a shaft. Thus, Badger relates to the art of vehicle or machinery components. To the contrary, Talafuse is directed to a fluid swivel joint. The swivel joint is used to rotatably connect two fluid conduits together. Thus, Talafuse relates to the art of fluid couplings. Moreover, these arts are so unrelated that one of ordinary skill in one art would not be inclined to look to the teachings of the other art. Therefore,

Badger should not be combined with Talafuse to render applicants' claimed invention obvious.

Even if Badger could be combined with Talafuse, however, the combination would not render independent claims 1, 7 and 13 obvious. Claims 1 and 13 each require that the number of balls in each race be *one more* than the number of balls in each adjacent race closer to the first end. As discussed above, Badger discloses that the number of balls in each race is *nine more* than the number of balls in each adjacent race. Similarly, claim 7 requires that the difference between the radii of the adjacent races be an amount sufficient to enable each race to accommodate *one more ball* than is disposed in the adjacent race. Once more, Badger teaches that each race be sized so as to accommodate *nine* more balls than is disposed in the adjacent race. Therefore, combining the teachings of Badger with Talafuse would not yield the invention recited in applicants' claims 1, 7 or 13. Consequently, claims 1, 7 and 13 are patentable over the combination of Badger and Talafuse.

Claims 2-6, 8-12 and 14-18 depend from claims 1, 7 and 13 and thus include additional limitations not found in claims 1, 7 and 13. Therefore, for the reasons stated above with respect to claims 1, 7 and 13, claims 2-6, 8-12 and 14-18 are patentable over the combination of Badger and Talafuse.

The prior art made of record but not relied upon has been considered but is not believed to be pertinent to the patentability of the present invention.

For the foregoing reasons, claims 1-18 are submitted as allowable.

Favorable action is solicited.

Respectfully submitted,



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